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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,225	05/11/2001	Geoffrey A. Strongin	2000.038900/TT3762	6355
23720	7590	08/23/2006	EXAMINER	
WILLIAMS, MORGAN & AMERSON 10333 RICHMOND, SUITE 1100 HOUSTON, TX 77042			LI, AIMEE J	
			ART UNIT	PAPER NUMBER
			2183	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,225

Applicant(s)

STRONGIN ET AL.

Examiner

Aimee J. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-14 and 16-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-14 and 16-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-3, 5-14, and 16-33 have been considered. Claims 4 and 15 have been cancelled as per Applicants' request. Claims 1, 5-6, 12, 16-17, 25-26, 28-29, and 31-32 have been amended as per Applicants' request.

Papers Submitted

2. It is hereby acknowledged that the following papers have been received and placed of record in the file: Amendment as received on 05 June 2006.

Non-Compliant Amendment

3. Examiner notes that claim 32 is currently labeled as "Original", however, there are indications of amendments made to the claim. The Examiner assumes that Applicant intended this claim to be identified as "Currently Amended" and based the rejection and response to arguments off of the amended language.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 5-13, and 16-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al., U.S. Patent Number 5,771,390 (herein referred to as Walker) in view of Angelo et al., U.S. Patent Number 6,581,162 (herein referred to as Angelo).

6. Referring to claims 1, 12, 25, 28, and 31, taking claim 12 as exemplary, Walker has taught a computer system, comprising:

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- a. A processor (Walker column 3, line 64 to column 4, line 44 and Figure 2); and
 - b. A device coupled to the processor (Walker column 3, line 64 to column 4, line 44 and Figure 2), wherein the device includes:
 - i. An indicator configured to indicate when the processor is in a first operating mode (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4);
 - ii. A first timer configured to indicate a duration in which the indicator is active (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4); and
 - iii. Control logic coupled to receive the duration from the first timer, wherein the control logic is configured to provide a control signal to the processor upon the duration reaching a predetermined value (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4).
7. Walker has not taught the first operating mode is a secure operating mode. Angelo has taught the first operating mode is a secure operating mode (Angelo column 6, lines 20-22). Angelo has taught that system management mode (SMM) and system management interrupts (SMIs) are traditionally used for power managements, as taught by Walker, but teaches that SMM and SMIs have been expanded to be used within computer security for memory

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management (Angelo column 7, line 43 to column 8, line 15). A person of ordinary skill in the art at the time the invention was made, and as taught by Angelo, using SMM and SMIs in computer security memory management protects the encryption process from malicious software and viruses and minimizes the danger of destroyed encryption keys remaining in computer memory (Angelo column 3, lines 34-41), thereby improving computer security memory management. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the computer security use of SMM and SMIs in the device of Angelo to improve computer security memory management. Claim 15 is substantially equivalent to claim 4. The differences between the claims are in the type of apparatus or method language.

8. Claim 12 is substantially equivalent to claims 1, 25, 28, and 31. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 12 is used for similar limitations found within these claims.

9. Referring to claims 2 and 13, taking claim 13 as exemplary, Walker has taught wherein the device comprises a bridge (Walker column 3, line 64 to column 4, line 44 and Figure 2). Claim 13 is substantially equivalent to claim 2. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 13 is used for similar limitations found within these claims.

10. Referring to claims 5 and 16, taking claim 16 as exemplary, Walker in view of Angelo has taught wherein the secure operating mode includes SMM (Angelo column 6, lines 20-22). Claim 16 is substantially equivalent to claim 5. The differences between the claims are in the

type of apparatus or method language. The rejection used above for claim 16 is used for similar limitations found within these claims.

11. Referring to claims 6 and 17, taking claim 17 as exemplary, Walker in view of Angelo has taught wherein the control signal is configured to indicate that the processor should exit (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4) the secure operating mode (Angelo column 7, line 43 to column 8, line 15 and column 9, lines 52-63). Claim 17 is substantially equivalent to claim 6. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 17 is used for similar limitations found within these claims.

12. Referring to claims 7 and 18, taking claim 18 as exemplary, Walker has taught wherein the predetermined value is less than about 2 seconds (Walker column 5, lines 20-31). In regards to Walker, the time period does not matter. Claim 18 is substantially equivalent to claim 7. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 18 is used for similar limitations found within these claims.

13. Referring to claims 8 and 19, taking claim 19 as exemplary, Walker has taught wherein the predetermined value is not substantially less than 200 milliseconds (Walker column 5, lines 20-31). In regards to Walker, the time period does not matter. Claim 19 is substantially equivalent to claim 8. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 19 is used for similar limitations found within these claims.

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14. Referring to claims 9 and 20, taking claim 20 as exemplary, Walker has taught wherein the predetermined value is set by software or firmware executing in the device (Walker column 5, lines 20-31). In regards to Walker, the time period does not matter. Claim 20 is substantially equivalent to claim 9. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 20 is used for similar limitations found within these claims.

15. Referring to claims 10 and 21, Walker has taught

- a. A second timer configured to indicate a duration since the control signal has been provided (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4);
- b. Wherein the control logic is further coupled to receive an indication from the second timer of the duration, wherein the control logic is further configured to provide a second control signal upon the duration since the control signal has been provided reaching a second predetermined value (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4).

16. Claim 21 is substantially equivalent to claim 10. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 21 is used for similar limitations found within these claims.

17. Referring to claims 11 and 22, taking claim 22 as exemplary, Walker in view of Angelo has taught wherein the second control signal is configured to indicate that the computer system

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should enter (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4) the second operating mode (Angelo column 7, line 43 to column 8, line 15 and column 9, lines 52-63). Claim 22 is substantially equivalent to claim 11. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 22 is used for similar limitations found within these claims.

18. Referring to claim 23, Walker in view of Angelo has taught a register coupled to receive a jump address for an interrupt (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4) the secure operating mode (Angelo column 7, line 43 to column 8, line 15 and column 9, lines 52-63), wherein the jump address corresponds to the processor entering the secure operating mode (Angelo column 8, lines 12-15; column 9, lines 23-51).

19. Referring to claim 24, Walker in view of Angelo has taught wherein the interrupt comprises a system management interrupt (SMI) (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4) the secure operating mode (Angelo column 7, line 43 to column 8, line 15 and column 9, lines 52-63) wherein the secure operating mode comprises system management mode (SMM) (Angelo column 8, lines 12-15; column 9, lines 23-51).

20. Referring to claims 26, 29, and 32, taking claim 26 as exemplary, Walker has not taught

- a. Wherein determining if the computer system is in a secure operating mode (Angelo column 6, lines 20-22) includes determining if the computer system is in system management mode (Walker column 1, lines 40-64; column 2, lines 31-37;

column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4), and

- b. Wherein asserting a control signal if the first timer has reached the predetermined value includes executing a return from SMM (RSM) instruction before an SMI handler exits the system management mode (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4).

21. Claim 26 is substantially equivalent to claims 29 and 32. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 26 is used for similar limitations found within these claims.

22. Referring to claims 27, 30, and 33, taking claim 27 as exemplary, Walker has taught

- a. Issuing an SMI request (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4);
- b. The computer system entering system management mode (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4); and
- c. The SMI handler servicing the SMI request (Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4);
- d. Wherein executing an RSM instruction before an SMI handler exits the system management mode occurs while the SMI handler is servicing the SMI request

(Walker column 1, lines 40-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4).

23. Claim 27 is substantially equivalent to claims 30 and 33. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 27 is used for similar limitations found within these claims.

24. Claims 3 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al., U.S. Patent Number 5,771,390 (herein referred to as Walker)) in view of Angelo et al., U.S. Patent Number 6,581,162 (herein referred to as Angelo), as applied to claims 2 and 13 above, and in further view of Applicant's admitted Prior Art (herein referred to as Prior Art). Taking claim 14 as exemplary, Walker has not explicitly taught wherein the bridge comprises a south bridge. However, Walker has taught that there is a bridge (Walker column 3, line 64 to column 4, line 44 and Figure 2). Prior Art has taught wherein the bridge comprises a south bridge (Prior Art page 3, line 19 to page 4, line 8). A person of ordinary skill in the art at the time the invention was made would have recognized that a south bridge provides interface between elements, thereby ensuring proper communication occurs between elements within the system. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the south bridge of Prior Art in the device of Walker to ensure proper communication between elements within the system. Claim 14 is substantially equivalent to claim 3. The differences between the claims are in the type of apparatus or method language. The rejection used above for claim 14 is used for similar limitations found within these claims.

Response to Arguments

25. Applicant's arguments filed 05 June 2006 have been fully considered but they are not persuasive. Applicants' argue in essence on pages 13-15

Applicants respectfully disagree. The Examiner has provided no record support for the conclusory statement that using a real-time clock alarm to determine a duration of a secure operating mode would improve computer security memory management. The prior art of record also fails to provide any suggestion or motivation for the Examiner's proposed combination and modification of the cited references. In particular, the cited references provide no teaching or suggestion in support of the Examiner's conclusory statement that using a real-time clock alarm to determine a duration of a secure operating mode would improve computer security memory management.

26. This has not been found persuasive. Walker was relied upon to teach the specifics of the timer for entering and exiting certain operating modes. In Walker's specific instance, the operating modes were for power management purposes (Walker column 1, lines 29-64; column 2, lines 31-37; column 2, line 60 to column 3, line 3; column 3, lines 44-59; column 4, line 61 to column 5, line 58; Figure 3; and Figure 4). Walker even discusses the use of system management mode (SMM) (Walker column 1, lines 29-37) and system mode interrupts (SMIs) (Walker column 5, lines 39-57 and Figure 3), which are claimed by applicant in claims 24, 27, 29, 30, 32, and 33, during power management. As the Examiner explained in the prior rejection and the rejection above, the Examiner then used the secondary reference, Angelo, to illustrate SMM and SMIs were traditionally used for power management tasks, such as that taught by

Walker, by Intel for portable systems. However, the uses SMM and SMIs were being expanded to include computer security for memory management (Angelo column 7, line 43 to column 8, line 15). Also, Angelo teaches using SMM and SMIs in computer security memory management protects the encryption process from malicious software and viruses and minimizes the danger of destroyed encryption keys remaining in computer memory (Angelo column 3, lines 34-41). Therefore, Walker teaches a timer with SMM and SMI while Angelo illustrates that the SMM and SMI modes of Walker can not only be used for power management but also for computer security, e.g. in secure operating modes.

Conclusion

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

28. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aimee J. Li whose telephone number is (571) 272-4169. The examiner can normally be reached on M-T 7:00am-4:30pm.

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30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

31. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AJL
Aimee J. Li
17 August 2006



RICHARD L. ELLIS
PRIMARY EXAMINER